

RESOURCE MANAGEMENT PLAN

FOR

FRBC FUNDED ACTIVITIES

IN THE

KISPIOX FOREST DISTRICT

2000 - 2001



Ministry of Forests

1.0 INTRODUCTION

The following document is a Resource Management Plan for the Kispiox Forest District. It addresses district business falling under the Forest Renewal BC Land Based Programs which include:

- Watershed Restoration (Enhance Environmental Values); and,
- Silviculture (Sustainable Harvest).

This plan provides the strategic goal and related objectives for managing the activities within each program. These goals were developed in 1998, and remain relevant today. In addition, Forest Renewal BC has added emphasis for 2000 – 2001 on projects that directly relate to Land and Resource Management Plan or Timber Supply Review priorities. Within the Kispiox Resource Management Plan, priorities have been identified for each program. Note that all operational inventory and research activities (Strengthening Sustainable Forest Management) that are funded by Forest Renewal BC are directed at the regional, versus district, level.

Over recent years, virtually all funding for these programs has been provided through the Skeena Region of Forest Renewal BC (FRBC). Although the Ministry of Forests (MOF) and the Ministry of Environment, Lands and Parks (MELP) have the mandate for administering land and natural resources in this region, many of the specific activities may be delivered by stakeholders other than these government ministries.

In keeping with FRBC's new land based delivery model, the Ministry of Forests entered into a three year agreement with FRBC, effective February 1, 1998, under which it committed to providing the following services on or before September 30th of each year:

1. establish resource objectives and resource priorities for each forest district;
2. identify resource investment opportunities by activity (type of work) and anticipated resource output for each forest district;
3. ensure that funding requirements for critical resource management activities are met.
4. establish resource management plans for each forest district; and
5. identify critical work consistent with Forest Renewal BC's strategic plan that must be done in the next fiscal year.

The Ministry of Forests and Ministry of Environment, Lands and Parks must provide FRBC and the other stakeholders guidance as to which activities are priority resource investments for achieving the goals and objectives within district resource management plans.

Using this document for guidance, FRBC will be able to make better investment decisions. It will allow clear consideration of resource management objectives, aside from the socio-economic objectives of FRBC.

2.0 KISPIOX FOREST DISTRICT

The Kispiox Forest District includes two timber supply areas: the Cranberry and the Kispiox. The topography of this area varies between mountain ranges, broad valleys and a number of major river systems, including the Kispiox, Skeena, Bulkley, Babine and Cranberry Rivers. The district is approximately 1.2 million hectares in size.

Roughly 6,000 people live within the district boundaries, divided between a number of small communities that include the Village of Hazelton, District of New Hazelton, South Hazelton, Kispiox, Glen Vowell, Two Mile, Kitseguecla, Kitwanga, Kitwancool and Cedarvale. First Nations have used the planning area for thousands of years. Aboriginal village sites are located along the Skeena, Bulkley, Cranberry and Babine Rivers.

2.1 Kispiox Land and Resource Management Plan

The Kispiox Land and Resource Management Plan (LRMP) was approved by Government and declared as a higher level plan under the Forest Practices Code Act of British Columbia in April, 1996. This plan provides strategic direction to a wide range of important values, and reflects the views of many community, government and industry participants. By law, operational forestry plans must be consistent with the objectives and resource management zones within the LRMP.

Within the LRMP, strategies give guidance to agencies on means for implementing objectives and zones. Many strategies suggest that inventories be completed or that specific activities be pursued. For instance, under wildlife, one strategy reads: 'Mapping of habitat capability and suitability for moose, grizzly bear, deer and mountain goat will be developed based on methods in Demarchi (1995). This habitat mapping will be used in landscape and operational planning'. A second example reads: 'Fish habitat restoration will be carried out within the context of the Watershed Restoration Program'.

These type of strategies naturally link to the objectives of Forest Renewal BC, and are reflected in the Kispiox Forest District and Prince Rupert Forest Region's Resource Management Plans.

2.2 Timber Supply Review Process

Every five years, the Chief Forester of British Columbia establishes the allowable annual cut (AAC) for each timber supply area and tree farm licence. The Kispiox Timber Supply Review process was last completed on December 30, 1996, when the Chief Forester maintained the AAC at 1 092 611 cubic metres. When he released his determination, the Chief Forester also made several recommendations to the district. Most of these recommendations have been implemented through research within the forest district, but some items may still require further work due to lack of adequate information. These include:

- to investigate the integration of botanical forest products into landscape unit planning; and,
- to identify management strategies for wildlife.

During the determination process, one important factor that was presented to the Chief Forester was a description of not-satisfactorily-restocked (NSR) areas. This is land considered

inadequately covered by a sufficient number of tree stems of desirable species as specified in the Ministry stocking standards. Backlog NSR refers to areas harvested prior to 1987 that are in this condition. In the 1995 timber supply review data package, approximately 5 500 hectares were calculated to affect the timber harvesting land base. However, district staff also presumed that all backlog NSR would be restocked by the year 2000. Using this assumption, the Chief Forester did not consider backlog NSR as a downward pressure on timber supply.

Since the 1996 determination, the status of backlog NSR has shifted considerably. Funding levels have plummeted, resulting in far less land being treated. Only 1 800 hectares has been successfully removed from the backlog total, rather than the full 5 500 hectares, which was the original district goal. This information will be incorporated in the next analysis package, which is currently being prepared. Aggressive treatment of backlog land continues to be a district priority, and is reflected in the silviculture portion of the Resource Management Plan.

The Cranberry Timber Supply Review process was concluded on June 1, 1998, when the Chief Forester maintained the cut at 110 000 cubic metres. Similar to his Kispiox determination, the Chief Forester included several recommendations, two of which still require some work:

- to validate an appropriate site index adjustment for single and mixed species; and,
- to refine Operational Adjustment Factors for the Timber Supply Area.

Most of these recommendations should be considered within the Forest Renewal BC inventory and research funding program, titled 'Strengthening Sustainable Forest Management'. This program is included in the Prince Rupert Forest Region's Resource Management Plan, rather than in the district plan.

2.3 District Stewardship Priorities

Several issues are reflected in the Kispiox Forest District's resource stewardship priorities that relate to the Forest Renewal BC programs for 2000-2001. These are:

- the near completion of several watershed restoration program units for roads, hill-slopes and gullies projects. Forest Renewal BC is targeting completion of 20 percent of key watersheds within the next five years. From an 'upslope' perspective, this goal is realistic within the Kispiox Forest District, given present funding levels.
- consistently reduced funding in the silviculture area, resulting in only a small portion of backlog not-satisfactorily-restocked areas being treated over the past several years. Round '2' of the Kispiox Timber Supply Review Process began in 1999, and backlog lands are incorporated in the base case, likely with some negative impact on timber supply. As stewards of the forest resource, treatment and elimination of backlog lands is a high priority for the ministry. The Kispiox Forest District has prepared a detailed silviculture strategy outlining all projects required to address backlog and other critical silviculture needs in a realistic and timely manner. The content of this resource management plan is based upon the district strategy.
- consistently reduced funding in silviculture resulting in only a small portion of the backlog free-growing program being addressed. Potential timber supply issues include: conversion

of all satisfactorily restocked land to NSR; conversion of satisfactorily restocked land to mixed wood; and, reduction of growth potential of satisfactorily restocked stands due to vegetation competition.

- implementation of the Kispiox Land and Resource Management Plan. Over the past two years, the Ministry of Forests, within limited resourcing levels, has proceeded with a number of inventories and research projects that directly support the objectives and strategies within the LRMP. This year, the district is focusing on the establishment of a monitoring committee that will be an important avenue for sharing information about plan implementation. Agencies must be prepared to answer public's questions about the many recommendations contained in the plan. Completion or initiation of projects that **directly** relate to the LRMP will be an important point of discussion with the monitoring group.

The Kispiox Forest District therefore recommends that investment priority be placed on backlog silviculture projects, to a greater degree than has been made in the past. At a minimum, the district funding split should mirror the priority placed on silviculture in the Kalum Forest District (60%). This emphasis is based on both timber supply implications and community employment opportunities that have been lost since funding to this historically important sector have been reduced.

To accommodate this priority, the district suggests that in the short-term, funding be shifted from the watershed restoration program to the silviculture program. Further reallocation of funding could be made between the inventory program and the silviculture program, if proposed projects do not clearly address timber supply review action items or directly relate to LRMP objectives and strategies.

3.0 RMP DEVELOPMENT PROCESS

The ground rules for developing the Resource Management Plan have been determined jointly by the Ministries and Forest Renewal BC. The ground rules are used as a benchmark against which the plans will be evaluated, and include geographic units, process coordination, process participants, plan process and content, and conflict resolution.

In the Kispiox, this process included the following steps and participants.

During August and September, the District prepared a Silviculture Strategy that elaborates on the 1999-2000 Resource Management Plan, and included project priorities for the next several years. At the same time, a draft list of watershed fisheries priorities was prepared by the Ministry of Environment, Lands and Parks, and incorporated in the watershed ranking spreadsheet prepared by the Ministry of Forests. The Department of Fisheries and Oceans was contacted for input, which they declined to provide, but they did request a copy of the final resource management plan.

By August, district inventory priorities were drafted and submitted to the regional office. Consultation with stakeholders was coordinated centrally. District staff provided comments to the regional office on the full list of proposed inventories on September 30, 1999.

A progress report was submitted to Forest Renewal BC on August 19, 1999, outlining the planning which had already occurred, and a timetable for consultation. On September 7, 1999, draft watershed and silviculture priorities were sent to Forest Renewal BC. No comments were received on either package of information.

On September 1, 1999, district staff met with Mike Bandstra and Rick Brouwer of SCI to review the draft silviculture and watershed priorities. No concerns were raised at this meeting, although they were interested in knowing when backlog activities would cease to be a district concern. District staff noted that this date would be in the very distant future (possibly never), at the current funding levels. Aggressive treatment could eliminate backlog in a few years; however, this response assumes more district staff as well as more operational funding.

District staff met with Vern Milton and Darlene Morgan of the Gitsegukla Economic Development Society on September 10, 1999. No concerns or comments were made regarding the watershed priorities or planning process. It was explained that further opportunities for input would be provided after detailed workplans are prepared this winter. Vern expressed interest in training opportunities in the next year, and district staff noted that Forest Renewal BC training dollars should be discussed directly with Bob Purdon. However, it was explained that locally, the district provides informal training through job shadows in contracts, or within the office, when there is interest from First Nations groups and when interest appropriately matches district projects.

Tony Morgan of the Gitanyow Huwilp Society, was presented with draft watershed priorities at a meeting on September 17, 1999. He had no concerns.

The Kispiox Band, represented by Max Stevens and Charlie Hillis, reviewed the draft watershed priorities on September 29, 1999. District staff outlined the shift in priorities away from roads, hill-slopes and gullies work that the band has now nearly completed in its watershed units.

Future work in these areas needs to focus on in-stream rehabilitation, which is managed by the Ministry of Environment, Lands and Parks. Band staff were quite concerned at the lack of communication coming from the Ministry of Environment, Lands and Parks this year, and the lack of operational work, even though significant funding was allocated in the work-plan. District staff acknowledged their concerns, and recorded them for future reference.

District staff reviewed the draft watershed priorities with Dave Silver, representing the Suskwa Restoration Society, on September 28, 1999. He also had no concerns at this time. He is aware that his input will be sought when funding levels are made know during the winter, and operational planning can take place. He was not adverse to seeing some funding shifted from WRP to Silviculture, if local employment opportunities continue to be available.

4.0 WATERSHED RESTORATION PROGRAM

4.1 PROGRAM GOALS

The overarching goals of the program are to:

- restore, protect and maintain fisheries, aquatic, and forest resources adversely affected by forest harvesting practices, that, without intervention, would require decades to recover naturally;
- bring areas harvested under previous (pre-Forest Practices Code) standards up to Forest Practices Code (FPC) standards; and
- provide a framework for restoration prioritization which can be applied on a watershed and district basis.

The regionally defined program goal is:

"To accelerate the recovery of watersheds, to mitigate existing forest resource impacts and to reduce the risk of future potential impacts that may have been caused by past forest practices. In doing so, achieve additional watershed benefits including: enhancing environmental values; and, providing options for longer term forest resource and management decisions."

4.2 ASSESSMENT AND RANKING OF WATERSHEDS

Priority watersheds for funding are identified through a joint ranking process conducted by MoF and MELP staff on a forest district basis. This process will be completed this fiscal year, and will assess:

- the level of impacts of past forest harvesting including the terrestrial (physical processes or erosion, road/hillslope/gully and stream channel stability);
- fisheries and wildlife values in the watershed;
- uses in the watershed; and,
- the potential for restoration success.

Specific ranking criteria are outlined in Table 1, below.

Table 1 - Criteria for Prioritizing Watersheds

	Criteria	Method of Measurement
State of the Watershed	• extent of impacts of past forest harvesting • degree of impacts on the flood plain • amount or potential for sediment production from harvesting or road related surface soil erosion	• percentage of watershed logged • percentage of the flood plain logged • number of landslides, % of harvested &/or roaded area within Class IV or V terrain stability, &/or on > 60% slope
Fisheries and Wildlife Values	• trends in abundance of fish populations • species of fish in the watershed • scale of impacts on the fish populations • Damaged or threatened habitat or populations	• stable, decline or increase • non-game, game, red/blue listed • level of impact (none, adverse) and the value of downstream fisheries (number of angler days/yr, number of escapement spawners, presence of stocks regulated by treaties)
Uses in the Watershed	• human uses of the watershed	• community watershed, domestic watershed, recreation, other resource uses, none
Potential for Restoration	• potential effectiveness of treatments • previous WRP activities within the watershed • proponent support	• as indicated by geomorphic activity, channel gradient and stability, stream size; and probable methodology (roads or streams only, integrated approach in part or integrated approach in whole watershed) • none, assessments, restoration works (roads, streams) • forest licensee priority, potential for First Nations and or community involvement, government only

The watersheds and sub-basins within the Kispiox district have been prioritized using basic criteria identified by the Ministry of Forests, and are listed on the following pages in Table 2. Rankings are coded VH (very high), H (high), M (medium) or L (low). Category refers to Forest Renewal BC's categories for watershed 'type' (reflects watershed history). 'Priority ranking factor' information was provided by the Ministry of Environment, Lands and Parks. This ranking for fish is preliminary, and will be refined in the future. 'Other ranking factors' (the last four columns) is the ranking information used in last year's resource management planning process.

Table 2 - Existing WRP Ranking of Kispiox Forest District (Landscape Unit) Watersheds

LANDSCAPE UNIT	SUBBASIN (if applicable)	Category (I-VI)	Priority Ranking Factors		Rank	Other Ranking Factors			
			Fish	domestic water supply		past development	physical characteristics	pr. of future impacts	probability of success
Skeena West		I	H		K	L			
Seven Sisters		V	H		L	L	M	L	H
Kitseguia		VI	H	(1) VH	H	M	H	H	M-H
Juniper		IV	H	(2) VH	K	L	M	M	L
Skeena Crossing		V	H	(3) VH	K	H	M	L	L
Hazelton		I	H	(4) VH	K	M	M	M-H	M
Kiwanga		VI	H	(5) VH	H	M-H	L-M	M	H-M
Kiwancool		VI	H		K	M	M	L	H
Moonlit		VI	H	H	K	H	L	M	H
McCully		I	H	(6) VH	K	H	M	L	L
Shegunia		I	H		K	H	M	M-H	H
Natlan		VI	H		H	L	L	L	M
Suskwa		VI	H	H	H	H	M	M	M
Gail		V	H		L	M	M-H	M	M

Note: H - top 20% of key watersheds
K - key watershed, not part of H
KC - key watershed, complete
TR - low priority, transition
L - low priority, work unlikely

Table 2. continued

LANDSCAPE UNIT	SUBBASIN (if applicable)	Category (I-VI)	Priority Ranking Factors		Rank (see note)	Other Ranking Factors			
			fish	domestic water supply		past development	physical characteristics	prob. of future impacts	probability of success
Tenas		I	H ¹		K	H	M	L	H
Kispiox		II	H	H	KC-TR	H	M	H	H
Cranberry River		VI	H		H	H	L-M	H	H
Uppr Cranberry		VI	H		H	L	L	L	H
Sweetin		VI	H		KC	H	M	M	M
Deep Canoe		V	L		L	M	M	M	M-H
Larkworthy		V	H		?	L	H	M	M
Babine River		V	H	H	L	L	M	L	L
Shedin		III	H		L	L	M	H	L
Hanawald		III	L		L	L	L	L	H
Shelagyote		III	H		K	L	M	L	M
Sicintine		III	H		L	L	H	M	L
Sheladamus		III	H		L	L	M	M	M
Kuldo		III	H		H	L	M	M	M
Upper Kispiox		III	H		H	L	H	L	H
Atna		III	H		L	L	M-H	M	M

4.3 OBJECTIVES AND STRATEGIES

FRBC watershed **restoration work is critical** if any of the following applies:

- public health or safety is placed in immediate danger
- if the work is not completed, there is a high probability of an event which will directly or indirectly cause significant environmental damage to water quality or fish habitat.

Once critical projects are identified, the next objective is to address high priority works within high priority watersheds. In terms of upslope activities fish and aquatic values are an important factor, but may not be the determining factors.

The following list of objectives and strategies addressing both the stewardship role and the strategic goals of the program. Both should be considered when developing projects and prioritizing activities within high priority watersheds.

Ensuring Access to Future Works

Requires consideration of cost effectiveness and/or long term risk management where deactivation or other activities causes loss of access to lower priority works.

Protecting Past Investments

Requires consideration of cost effectiveness for the program where:

- Activities have been partially complete (e.g. assessment or prescriptions completed which will be lost if not implemented)
- Activities that require subsequent treatments (e.g. bioengineering where successive treatments are required to achieve stability)
- Monitoring of sites following treatment

Performing Preventative Works

Requires consideration of cost effectiveness (it is often in the magnitude of 2 to 4 times more expensive to restore a site after failure than to prevent the failure by using mitigating works.)

On active and non-status roads, treat sites that are showing signs of instability or excessive erosion. Additional criteria to be considered are:

- safety issue involving current road users;
- potential impacts to a stream containing commercial, sport fisheries or community water supply;
- potential impacts on other infrastructure (roads or bridges);
- visual impact along major transportation corridors or high recreational use areas; and,
- impacts to existing plantations or forest land.

Providing and Maintaining Access

For work on non-status roads required for accessing and maintaining access for other FRP activities.

Recovering and Protecting Fish and Wildlife Habitat

Replace culverts and drainage structures that isolate fish habitat.

Co-ordinate with other fisheries initiatives such as the Coho Recovery Plan.

Evaluate access through the access management process leading to the protection of sensitive populations and habitat.

Monitoring and Evaluation

Until a fully integrated monitoring and evaluation strategy is developed (see Section 2.6), it is anticipated that no more than 5 percent of the total annual WRP will be allocated to monitoring and evaluation. Monitoring and evaluation will be directed towards the highest risk/highest investment sites and also sites which integrate new technology and treatments.

4.4 ELIGIBLE ACTIVITIES

Eligible activities include assessments, prescriptions and works pertaining to restoration of fish habitat, stream channels, riparian areas, landslides, gullies, roads, landings and hillslopes. The intent of the WRP is to treat entire watersheds effectively and efficiently. The WRP funds mitigation work for problems which are incremental to those which would have been caused by constructing roads and trails faithfully according to the standards of the day. This work is over and above what would have been the normal obligations of the ministry or licensees. Forest Renewal BC spending is meant to add to, not substitute for expenditures made by governments and industry.

Activities funded by Forest Renewal BC must meet all of Forest Renew BC eligibility guidelines and policies.

4.4.1 Activities on Private Land

At present, work on private land **is not eligible** for funding under WRP, except for exceptional cases which require the specific approval of FRBC. This rule includes Schedule A land within tree farm licences and the private portions of woodlot licenses. A new policy is under review which may allow some limited activities on private land under strict guidelines.

4.5 THREE YEAR INVESTMENT PROFILE

Given the high degree of uncertainty pertaining to Forest Renewal BC's support of annual agreements, uncertainty in future funding levels, and the Kispiox Forest District's role as lead proponent on WRP, it is difficult to predict budgets and outputs over the long or short term.

The following table illustrates the Kispiox District's three year investment profile for those watersheds where the district is the lead proponent. When watersheds and sub-basins are prioritized based on the criteria in this RMP then refinements will be made to reflect any changes. Table 3 reflects a commitment to complete high and medium priority watershed thereby minimizing loss on investment, ensuring orderly completion of active watersheds, and stability for implementing partners. In formulating the 3 year plan it is assumed that the level of funding will fluctuate, hence the table uses percent budget. Note that as activities are completed in an individual watershed the percent of the budget allocation is decreased accordingly.

Table 3 - Three Year Investment Plan

Watershed	Status of Work	% Budget By Year		
	Stage I - IV (Note 1)	2001	2002	2003
Kispiox	II	2	1	0
	III	10	5	0
	IV	3	3	3
Suskwa	II	5	2	0
	III	15	10	10
	IV	2	2	2
Kitsegukla/Kitwanga	II	10	10	5
	III	30	32	34
	IV	3	3	3
Cranberry	II	15	10	10
	III	5	20	30
	IV	0	2	3

Note 1: Stage I - Planning and Overview Assessment, Stage II - Prescriptions, Stage III - Major Works, Stage IV - Monitoring and Evaluation. Included in Stage III are Road Deactivation, Hillslope Restoration, Road Rehabilitation. Bridge replacement is under a separate RMP.

4.6 MONITORING AND EVALUATION

Program review and evaluation is critical to monitor the success of treatments because the program is using new techniques and technologies. As the watershed restoration program progresses, there will be more emphasis on monitoring the results of restoration work that has been completed. For a particular watershed, the monitoring variables (items which are to be measured) are chosen based on the project objectives. The monitoring plan is based on these monitoring variables and the range of items defined by the scope of interest in the project. Once monitoring is complete, results are used to evaluate the effectiveness of the assessment and

prescriptions development phase and make recommendations for changes in standards, techniques and the range of eligible activities as required.

A common framework for Effectiveness Monitoring is now being developed jointly by both MOF and MELP. When this common framework is developed, each ministry will develop technical specifications that are specific to each ministry's mandate and needs. It is planned that monitoring be done jointly between the two ministries where ever and when ever feasible.

5.0 SILVICULTURE AND FOREST HEALTH PROGRAMS

5.1 REGIONAL PROGRAM GOAL

"To maintain or enhance the timber supply and fibre flow opportunities within the area under the plan in a manner consistent with any higher level plans, operational plans, district manager policy."

Treatments to regenerate backlog NSR sites and maintain health and vigor of forest stands often represent excellent opportunities for achieving investment, timber supply and social objectives. The following strategic objectives are to guide the management of resources necessary to achieve this goal. The Objectives along with the underlying strategies developed in this document are listed to facilitate the identification of the investment priorities.

In addition to the priorities listed below, the Kispiox Forest District has prepared a detailed district silviculture strategy that addresses all program needs. This strategy describes individual projects in terms of stewardship, operational time-frames, funding and levels and special constraints. Further information about this strategy can be obtained by contacting district staff.

Annual targets and investment levels needed to achieve the Goal are:

	Five-year Plan Goals (ha)					Annual Plan 2000/01		
	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	Funding (\$000)	Unit Cost (\$)	Priority
Legal Obligations								
1 Planning/surveys/prescriptns	5000	2000	1000	0	0	\$90	\$0	2
2 Site preparation	0	0	0	0	0	0	0	0
3 Planting	0	0	0	0	0	0	0	0
4 Brushing	0	0	0	0	0	0	0	0
5 Seed purchase	0	0	0	0	0	0	0	0
6 Max. density spacing	0	0	0	0	0	0	0	0
7 Pruning	0	0	0	0	0	0	0	0
Totals	5000	2000	1000	0	0	90	\$0	

Backlog Reforestation

1 Planning/surveys/prescriptns	1100	100	100	100	100	\$100	\$0	1
2 Site preparation	0	0	0	0	0	0	0	0
3 Site restoration road/land. Rehab	32	100	100	100	100	60	2	4
4 Planting	0	300	0	0	0	0	0	0
5 Brushing	0	200	0	0	0	0	0	0
6 Seed purchase	0	300	0	0	0	0	0	0
Totals	1132	1000	200	200	200	\$160	\$0	

Impeded areas

1 Planning/surveys/prescriptns	8000	8000	6000	6000	4000	\$200	\$0	1
2 Site preparation	0	0	0	0	0	0	0	0
3 Planting	0	0	0	0	0	0	0	0
4 Brushing	3000	3000	3000	2000	2000	2,100	1	1
5 Seed purchase	0	0	0	0	0	0	0	0
Totals	11000	11000	9000	8000	6000	\$2,300	\$0	

**Backlog Activities -
Management Unit Total**

1 Planning/surveys/prescriptns	14100	10100	7100	6100	4100	\$390	\$0	
2 Site preparation	0	0	0	0	0	0	0	
3 Site restoration road/land. Rehab	32	100	100	100	100	60	2	
4 Planting	0	300	0	0	0	0	0	
5 Brushing	3000	3200	3000	2000	2000	2,100	1	
6 Seed purchase	0	300	0	0	0	0	0	
7 Max. density spacing	0	0	0	0	0	0	0	
8 Pruning	0	0	0	0	0	0	0	
9 Studies	0	0	0	0	0		0	0
Totals	17132	14000	10200	8200	6200	\$2,550	\$0	

5.2 Backlog Silviculture Objective:

To ensure prompt and effective reforestation and stand tending on backlog sites until free growing stands are achieved; and

To declare all backlog sites Free Growing by the year 2010.

Backlog is the term used to refer to areas from which timber was harvested, damaged or destroyed before October 1, 1987, which are, in the District Manager's opinion insufficiently stocked with healthy well-spaced trees of commercially acceptable species. Typically harvested prior to implementation of the Forest Practices Code, these sites did not have today's stocking standards requirements for reforestation and stand tending to meet free growing. Achievement of the sufficiently stocked, well-spaced and free growing state for these blocks is critical. Not a statutory obligation, treating backlog areas will support commitments to maintenance of fiber flow. Impacts include contribution to Allowable Annual Cut determinations while ensuring the health and vigor of these areas are not compromised and future resource options are not limited.

To date, the Kispiox Forest District has 62,012.9 hectares of backlog land of which 23,238.8 hectares has been declared as "Free Growing". To meet the district objective on backlog sites, the following strategies are recommended:

Strategy:

Eliminate Not Satisfactorily Restocked (NSR) areas by year 2002.

Actions to achieve this include (in priority order):

- Where economically viable, complete all site preparation and planting on good, medium and poor site classes as soon as possible.
- Identify NSR which is more appropriately managed for non-timber resources and revise management strategies to accept pre-existing conditions.
- Bring pre-1982 NSR backlog land to Free to Grow stocking where investments are warranted. Focus on good and medium sites.
- Identify and ensure remaining sites have backlog Silviculture Prescriptions developed during 2000 or 2001.
- Complete planting during the year 2000 or 2001.
- Provide an accurate inventory label and volume adjustment factor for areas which will no longer be treated.
- Only treat stands with suitable road access or access that only requires minor upgrading.

Strategy:

Bring all backlog sites to free growing status by the year 2010.

Actions to achieve this include:

- Conduct appropriate assessments and field surveys to establish baseline information upon which to rank areas for treatments, and to develop treatment prescriptions.
- Conduct appropriate brushing treatments to protect existing investments by ensuring impeded areas remain Satisfactorily Restocked and achieve desired objectives.
- Provide density control (brushing/spacing), particularly on medium and low sites, before competition becomes intense to reduce the impacts of repression.
- Provide density control (brushing/spacing) within two years of a survey on all sites where competition will restrict achievement of the free growing status.
- Continuously maintain the health, vigor and vitality of reforested sites (see also Forest Health).
- Through periodic surveys, monitor each stand's progress towards free growing and take corrective actions as necessary to ensure free growing status is achieved as per the prescription.
- Accelerate stand tending of these sites in the Kispiox district to meet the targeted time frame. Estimated 2,000-3,000 hectares per year of stand tending for the next 3 years decreasing progressively to 0 hectares by year 2008.
- The cumulative cost of all brushing treatments should not exceed \$2,000 per hectare.
- Only treat stands with suitable road access or access that only requires minor upgrading.

Strategy:

Mixedwood management for free growing.

Deciduous may become more important in the future wood supply and to dismiss its value based on present market conditions reduces future management options. Considered a Ministry Principle, treating stands to produce a diversified portfolio of forest products allows BC to minimize risk and better respond to changing market conditions.

To facilitate the achievement of free growing some blocks will require the inclusion of deciduous (in priority order):

- Maintain, where economically and biologically feasible, a component of deciduous in backlog areas - up to 20 percent of the inventory label for all blocks.
- Deciduous component is not to conflict with achievement of conifer stocking levels.
- Consider accepting deciduous on backlog areas as 'acceptable crop trees' where conifer stocking is less than desired. Accept the largest, most vigorous trees, preferring birch.

cottonwood, aspen in descending priority. This applies on a site-specific basis where site and stocking conditions warrant.

- Deciduous which has grown to 15 cm dbh should not be felled or girdled during any stand tending treatment. These trees are considered near-merchantable, and felling may damage conifer crop trees or sprouting may negatively influence conifer tree free growing state.

5.3 FOREST HEALTH OBJECTIVE:

To maintain or improve the health, vigor and vitality of the forested land base while reducing resource losses caused by the various damaging agents.

The distribution and impacts of many forest health agents are not well known. Better estimates of forest health agents will allow for more accurate estimates of timber supply losses from stands that do not achieve stocking and site potential.

Strategy:

Maintain crop tree vigor by reducing impact of forest pests.

Actions to achieve this include:

- Ensure existing forest resources are protected from damaging agents.
- Ensure damaging agents do not impede silviculture obligations or investments.
- Monitor forest health and the occurrence of damaging agents that impact forest health:
 - on regenerated sites, concurrent with formal surveys or informal audits; and,
 - on mature timber types, through annual overview flights.
- Implement treatments to minimize the impact of damaging agents on all stands.
- Implement treatments to ameliorate chronic infestations which result in repressed growth rates on regenerated stands.

Activities	Units	Five-year Plan Goals (ha)					Annual Plan 2000/01		
		2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005	Funding (\$000)	Unit Cost (\$)	Priority
1 Ground Surveys	ha	0	0	0	0	0	\$0	\$0	0
2 Aerial Surveys	hrs fly time	14	14	14	14	14	10	1	0
3 Fall and burn treatment	trees	0	0	0	0	0	0	0	0
4 MSMA treatment	trees	0	0	0	0	0	0	0	0
5 Pheromone baiting	trees	0	0	0	0	0	0	0	0
6 Defoliator spraying	ha	0	0	0	0	0	0	0	0
7 Studies	number	2	0	0	0	0	100	50	0
8 Other		0	0	0	0	0	0	0	0
Totals		16	14	14	14	14	\$110	\$7	

5.4 ENHANCED SILVICULTURE OBJECTIVE:

To manage incremental silviculture activities to achieve their maximum resource benefits, including AAC and fiber flow, over both the short and long terms.

The ministry policy is that incremental silviculture programs will be used to manage forests beyond the free growing stage to meet the sustainable economic, social and environmental objectives of the people of British Columbia. These objectives will be met by improving the forest health, stand value, wildlife habitat, wood flow and employment opportunities. Incremental silviculture occurs on those stands which have met the basic "free growing" standards where it has been shown that it is economically viable to perform the treatment, be that spacing, pruning or fertilization.

This work holds high to medium priority inasmuch as there are benefits to be realized in the TSR. However it is important to not divert investment and effort from backlog initiatives to fulfill enhanced forestry strategies. Treating backlog NSR sites with uniform stocking and protecting plantation investments provides greater return on investments than incremental activities. However, in certain instances, financial analysis may reflect otherwise, depending upon comparisons of specific sites.

Annual targets and investments levels needed to achieve the enhanced forestry objective within the silviculture goal are:

Targets (hectares)

Activity	1999	2000	2001	2002	2003
Spacing	300	200	200	200	200
Pruning	100	100	100	100	100

Investments (dollars)

Activity	1999	2000	2001	2002	2003
Spacing	30,000	unknown	unknown	unknown	unknown
Pruning	15,000	unknown	unknown	unknown	unknown

Strategy:

spacing

The time required for volume recovery is directly related to spacing intensity. It is unlikely that volume recovery will occur before harvest, therefore economic viability is a key factor to consider before proceeding with this type of treatment. Poor crop tree selection may further risk volume recovery.

Actions to achieve this include (in priority order):

- The range of densities in managed second growth stands should vary to ensure adequate diversity in future forest structure and habitat.

- A minimum of 4 percent return on investment is expected. Treatments will be generally on sites with the highest productivity potential or in combination with other treatments such as pruning and fertilization.
- Spacing densely stocked Lodgepole pine stands to prevent height growth repression and stagnation are high priority.
- Spacing stands between 5,000 - 10,000 stems per hectare are high priority
- Spacing stands between 3,000 - 5,000 stems per hectare are medium priority.
- Crop tree vigor must take precedence over uniformity of spacing (mitigate "chainsaw effect"),
e.g. crop tree minimum inter-tree distance may be reduced to 1.0 meters to maintain the largest and most vigorous trees, however there must be no more than the acceptable number of crop trees as defined by the contract density specifications.
- Only treat stands with suitable road access or access that only requires minor upgrading.

Strategy:

pruning

Actions to achieve this include:

- This strategy will be considered in later years of the resource management plan, when backlog obligations have been reduced or met.

Strategy:

fertilization

Actions to achieve this include:

- This strategy will be considered in later years of the resource management plan, when backlog obligations have been reduced or met.